

IN THE CLAIMS

Please cancel Claims 3-4, and 7-9.

Please amend Claims 1-2, and 5-6; and add Claims 10-16 as follows:

1. (Currently Amended) A monitoring system comprising:

[[-]] a primary system with multiple devices; and

[[-]] a simulator for simulating behavior of the primary system;

wherein:

[[-]] the monitoring system evaluates a result supplied by the primary system with respect to an outcome calculated by the simulator in order to monitor the primary system;

wherein each respective one of the devices comprises a respective finite state machine; each respective state machine calculates, per time step, a value of a quantity according to a respective mathematical function; and

wherein each respective device has a respective computational resource; each respective one of the devices performs a respective primary task using the respective resource; depending on usage of the resource for the respective primary task, each respective device performs a respective secondary task for reducing availability of the respective computational resource; and the respective secondary task comprises calculating the quantity using adapting a length of the respective history.

2. (Currently Amended) The system of claim 1, wherein:

~~each respective one of the devices comprises a respective finite state machine;~~

~~the respective state machine calculates per time step a value of a quantity according to a respective mathematical function;~~

[[-]] the respective mathematical function has as arguments:

[[-]] the value of the quantity calculated at a preceding time step by at least another one of the state machines;

[[-]] a respective history of values assumed by the quantity calculated by the respective state machine;

[[-]] a respective control code determined by content present in a memory of the respective device at the time step;

[[-]] the respective mathematical function is such that the quantity assumes a stochastic behavior.

3. - 4. (Cancelled)

5. (Currently Amended) A method of enabling protection of ~~to protect~~ a primary system that has multiple devices, the method comprising:

[[-]] simulating a behavior of the primary system; and

[[-]] evaluating a result supplied by the primary system with respect to an outcome calculated by the simulator;

wherein each respective one of the devices comprises a respective finite state machine;

the respective state machine calculates per time step a value of a quantity according to a respective mathematical function;

each respective device has a respective computational resource;

each respective one of the devices performs a respective primary task using the respective resource;

the method comprises enabling each respective device to perform a respective secondary task, depending on the respective primary task, for reducing availability of the respective computational resource; and

the respective secondary task comprises calculating the quantity using adapting a length of the respective history.

6. (Currently Amended) The method of claim 5, wherein:

~~—each respective one of the devices comprises a respective finite state machine;~~
~~—the respective state machine calculates per time step a value of a quantity according to a respective mathematical function;~~

[[-]] the respective mathematical function has as arguments:

[[-]] the value of the quantity calculated at a preceding time step by at least another one of the state machines;

[[-]] a respective history of values assumed by the quantity calculated by the respective state machine; and

[[-]] a respective control code determined by content present in a memory of the respective device at the time step; and

[[-]] the respective mathematical function is such that the quantity assumes a stochastic behavior.

7. - 9. (Cancelled)

10. (New) A method of determining the integrity of a distributed information processing system including a plurality of networked devices, each device including a finite state machine (FSM), the method comprising:

performing a primary task in each of the plurality of networked devices, the primary task having a computation requirement that varies over time;

performing a secondary task in each of the plurality of networked devices, wherein performing the secondary task in a first one of the plurality of networked devices includes generating, per time step, a respective numerical value that depends on a corresponding numerical value in each of the others of the plurality of networked devices at a previous time step;

receiving, at a control server, update information regarding the state of each of the plurality of networked devices;

simulating, in the control server, the secondary task of each of the plurality of networked devices, wherein simulating the secondary task in the control server includes generating, per time step, numerical values for each of the simulated secondary tasks, based at least upon the received update information;

receiving, at the control server, the numerical values generated by the plurality of networked devices; and

determining whether there is a mismatch between the received numerical values and the simulated numerical values;

wherein generating the numerical value, per time step, in each of the networked devices, further depends on a history of previous numerical values of the device performing the secondary task, the history has a length, and the length is dynamically modified in inverse relation to the computational requirements of the primary task.

11. (New) The method of Claim 10, wherein the step of determining whether there is a mismatch is performed by the control server.

12. (New) The method of Claim 11, further comprising generating an alert if it is determined that there is a mismatch between the received numerical values and the simulated numerical values.

13. (New) The method of Claim 12, wherein generating the numerical value further depends on an internal state of the device performing the secondary task.

14. (New) The method of Claim 13, wherein the internal state includes a memory content, and an I/O buffer content of the device performing the secondary task.

15. (New) The method of Claim 14, wherein the secondary task is chosen such that the performance of the secondary tasks by networked devices results in the behavior of a dynamic non-periodic stochastic process.

16. (New) The method of Claim 15, wherein the control server is geographically remote from the networked devices.


